

SMA - SMA 2 - SMA 230

Operating instructions for installation and commissioning

(Translation)

1 Safety instructions

These devices and their accessories may only be operated in compliance with the operating instructions (intended use)!

These devices and their accessories may only be commissioned by trained and qualified personnel.



These devices may only be operated with the intended operating voltages and parameters.

If malfunctions occur that cannot be rectified, shut down the device and send it in for repair.

These devices are only allowed to be repaired by the manufacturer. Tampering and alterations are not permitted. This will invalidate all guarantee and warranty claims.

2 Mounting and electrical connection

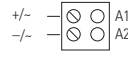
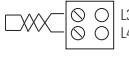
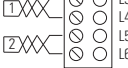

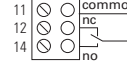
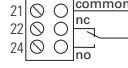
SMA is mounted directly onto a standardized 35-mm mounting rail.

The terminals for all connections are coded pluggable terminals.



The loop connection wiring to the loop detector must be twisted at least 20 times per meter.

Please wire the device in accordance with the terminal assignment. Make sure the terminals are assigned correctly.



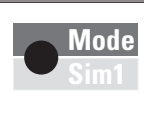
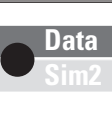
Supply voltage	Loop connection 1-channel device	Loop connection 2-channel device	Alerting	Output	2nd output
					

3 Value and parameter setting options

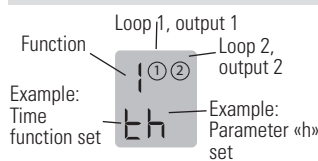
General

The settings of the devices in this chapter are shown and explained for the 1-loop device. The settings for loop 2 of a 2-loop device should be made using the corresponding method.

3.1 LCD display and controls

Standard display 1-loop device	Standard display 2-loop device	Control button	Control button
			

Explanation of the LCD display



Explanation of the LED

Info	
Red:	Start-up phase
Green:	Operation
Red & green:	Configuration
Flashing green:	Loop activated
Flashing red:	Error
Flashing red + green:	Simulation

3.2 Basic functions *D* (see Table 4.1a for settings)

Parameters

- 1: Door and gate** The assigned output relay picks up when the loop is activated and drops out when the loop returns to a non-activated condition.
- 2: Barrier** The assigned output relay picks up when the loop is activated and drops out when the loop returns to a non-activated condition.
- 3: Quiescent current** The assigned output relay drops out when the loop is activated and picks up again when the loop returns to a non-activated condition.
- 4: Direction logic** Output 1 switches if an object moves from loop 1 to 2. Output 2 switches if an object moves from loop 1 to 2. **Both loops** must be activated for a short time. The outputs are reset again when loop 2 returns to a non-activated condition. Both loops must have returned to a non-activated condition for another direction detection.

0: Loop 2 Loop 2 / output 2 can be deactivated in a 2-loop device.

Relay response to malfunctions (see chapter 6 Troubleshooting):

1. Door/gate systems	A malfunction causes the output relay to be released. The alarm relay drops out.	2. Barrier	A malfunction causes the output relay to pick up. The alarm relay drops out.	3. Quiescent current	A malfunction causes the output relay to be released. The alarm relay drops out.	4. Direction logic (2-loop device only)	A malfunction causes the output relays to be released. The alarm relay drops out.
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3.3 Time functions 1, time unit 2 and time factor 3 (see Table 4.1a for settings)

<p>H The relay picks up when the loop is activated and drops out when the loop is exited.</p>	<p>O On delay: The relay picks up after the time t when the loop is activated and drops out when the loop is exited.</p>	<p>F Off delay: The relay picks up when the loop is activated and drops out after the time t when the loop is exited.</p>
<p>J Activation pulse: The relay picks up when the loop is activated and drops out again after the time t.</p>	<p>I Impulse by leaving the loop: By leaving the loop, the relay picks up after the time t, relay drops out.</p>	<p>P Max. presence: The relay picks up when the loop is activated and drops out again after leaving, but at least after the time t.</p>

3.4 Sensitivity 4 (see Table 4.1a for settings)

The sensitivity 5 (=Sensitivity) of the loop detector can be adapted in 9 stages: 51 = Lowest sensitivity, 59 = Highest sensitivity, 54 = Factory setting.

3.5 Automatic Sensitivity Boost ASB 5 (see Table 4.1a for settings)

ASB (=Automatic Sensitivity Boost). ASB is required in order to be able to recognise trailer drawbars after activation.

3.6 Frequency 5 (see Table 4.1a for settings)

Four different frequencies F1, F2, F3, F4* can be set in order to avoid interference when using several loop detectors.

3.7 Direction logic 7 (see Table 4.1a for settings)

The direction logic function can only be used with a 2-loop device. Direction logic must have been set in the basic function (see chapter 3.2). Detection can be performed from: → Loop 1 to loop 2 → From loop 2 to loop 1 → from both directions

3.8 Output 2 B (see Table 4.1b for settings)

In a device with 2 outputs, output 2 can be either activated or deactivated.

3.9 Protection against power failure 9 (see Table 4.1a for settings)

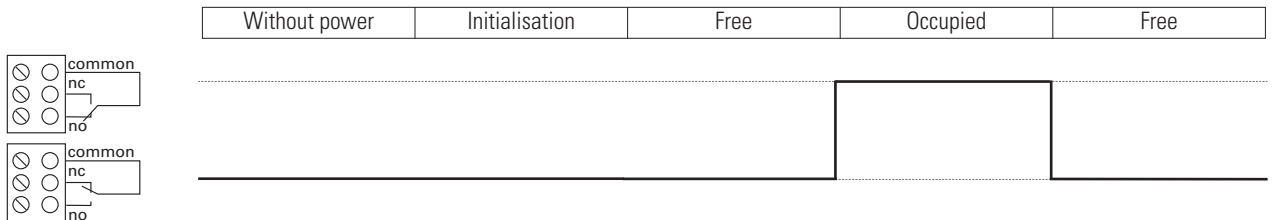
Basic function 2 «Barrier systems» or 3 «quiescent current» must be set for this function.

P 1 = Protection against power failure activated: The sensitivity is restricted to 1–5 and the time function to h.

3.9.1 Signal characteristics with protection against power failure active (Function 9 = 1)

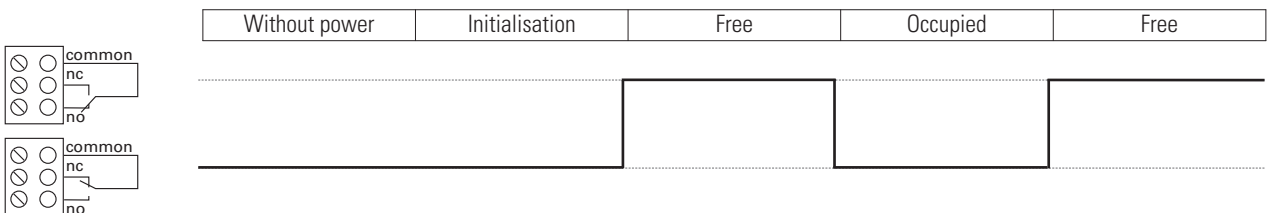
For Activation (e.g. Barriers)

Basic function 0 = **2 Barrier systems**



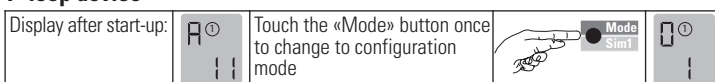
For Safeguarding (e.g. Barriers, bollards)

Basic function 0 = **3 Quiescent current**



4 Changeover from operation to configuration mode

1- loop device



2- loop device



4.1 Configuration mode

Note on 2-loop device: After loop 1 has been set, the parameters for loop 2 are set (make the settings using the same procedure) and the settings are not shown in the table with the exception of the direction logic

Table 4.1a Settings

Function	LCD display	Button operation functions	Button operation parameter							Notes
0 - Basic function			Door/gate systems*							
1 - Time function			∞*							With deactivation of Loop 2 the output 2 becomes configurable → 8
2 - Time unit			This display does not appear with time function th (∞)							
3 - Time factor			This display does not appear with time function th (∞)							
4 - Sensitivity			5 = Sensitivity							
5 - Automatic Sensitivity Boost ASB			ASB stands for Automatic Sensitivity Boost							
6 - Frequency										
7 - Direction logic			This display appears only with a 2-loop device							The direction logic function can only be implemented with 2 loops and a 2-loop device
8 - Output 2 configuration										Loop 2 has to be deactivated «0»
9 - Protection against power failure										If parameter 9=P 1 parameter 5 must be set to off (5=RD).
A - Operating mode										Possible displays in case of error: see chapter 6 of these operating instructions

* Factory setting

Table 4.1b Different product variants (setting options)

SMA, SMA 230		
Loop 2	Output 2	Notes
–	→ 1*/0	1 = Output 2 on; 0 = Output 2 off

SMA 2		
Loop 2	Output 2	Notes
active	–	Parameter 8 is not possible and is not displayed
deactivated	→ 1/0*	1 = Output 2 on; 0 = Output 2 off

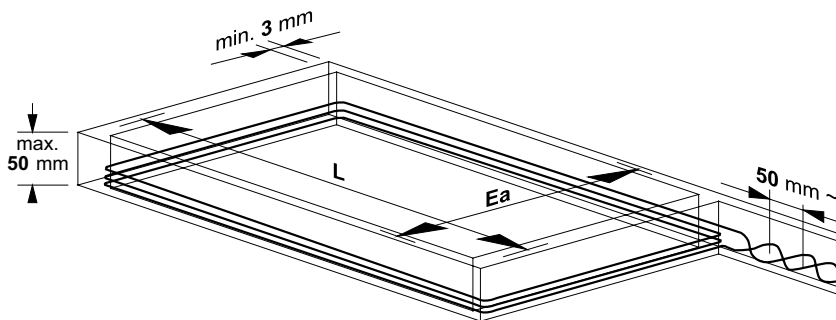
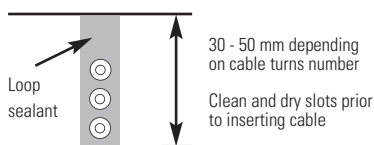
5 Determination of the number of loop turns

- For conformity reasons, in any situation, the antenna factor defined as the loop surface multiplied by the number of turns should not exceed $NA = 20$

For example, if $L = 2\text{m}$, $Ea = 1\text{m}$ and the number of turns = 4, then the $NA = 2 \times 1 \times 4 = 8 < 20$.
Find hereafter the recommended values for the turns:

Area	Number of turns
< 3 m ²	4
3-5 m ²	3
6-10 m ²	2

Slot depth



6 Troubleshooting

- If an error occurs, operating mode «A» and error display «E» light up alternately and an error code such as E 012 is displayed. The LED changes to flashing red, the 4 most recent errors are stored and can be interrogated.

Display	E001	E002	E011	E012	E101	E102	E201/E202	E301	E302	E311	E312
Error	Interruption Loop 1	Interruption Loop 2	Short circuit Loop 1	Short circuit Loop 2	Under-voltage	Over-voltage	Saving error	Loop 1 too large	Loop 2 too large	Loop 1 too small	Loop 2 too small

- Briefly pressing the «Data» button shows the last of 4 errors on the display. Another short press switches to the error before that, and so on. When the button is pressed for the 5th time, the device switches back to automatic mode. If you press the «Data» button for 4 seconds during the query, all error messages are deleted. The figure shows memory slot 1 in which error 001, Interruption loop 1, has been stored (example).

7 Reset

Reset 1 (recalibration)
The loop(s) is/are recalibrated.

Reset 2 (factory setting)
All values are reset to the factory settings (see Table 4.1a). The loop(s) is/are recalibrated.

8 Most important technical data

Supply voltage SMA, SMA2	24 VAC -20% to +10%, max. 2 VA 24 VDC -10% to +20%, max. 1.5 W	Supply voltage SMA 230	100-240 VAC ± 10%, 50/60 Hz, max. 2.9 VA
Power consumption	max. 2 VA	Loop resistance	< 8 Ohm with connection wire
Loop inductance	max. 20–1000 µH, ideally 80–300 µH	Loop connection wiring	max. 25 m 1,5 mm ² min. 20x/m
Output relay (loop)	240 VAC/2 A AC1	Output relay (alarm)	max. 40 VACDC; 0.3 A; AC-1
Dimensions	22.5 x 94 x 88 mm (W x H x D)	Operating temperature	-20°C to +60°C
Connection type	Plug-in terminals	Storage temperature	-40°C to +70°C
Protection class	IP 20	Air humidity	<95% non-condensing

All data checked with the maximum care. However, no liability is accepted for any error or omission.
The declaration of conformity and other technical documentation are available on our website www.came.it – BUY-TO-SELL PRODUCT



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